

CLAIMS

1. A backlight device comprising:

a first light source group including one or more light
5 sources that emit visible light and infrared rays;

a second light source group including one or more light
sources that emit visible light and infrared rays; and

a drive unit that drives the one or more light sources
of said first light source group in response to a first
10 synchronous signal and drives the one or more light sources
of said second light source group in response to a second
synchronous signal, wherein

a phase difference between said first synchronous
signal and said second synchronous signal is within a range
15 larger than 60 degrees and smaller than 120 degrees or a range
larger than 240 degrees and smaller than 300 degrees.

2. The backlight device according to claim 1, wherein
each of the one or more light sources of said first light
20 source group and the one or more light sources of said second
light source group is a fluorescent lamp.

3. The backlight device according to claim 1, wherein
said first light source group includes a plurality of
25 light sources, and

said drive unit drives a part of said plurality of light sources of said first light source group in response to said first synchronous signal, and drives the rest of said plurality of light sources of said first light source group in response to a third synchronous signal having a different phase from that of said first synchronous signal by half a period.

4. The backlight device according to claim 3, wherein said second light source group includes a plurality of light sources, and

said drive unit drives a part of said plurality of light sources of said second light source group in response to said second synchronous signal, and drives the rest of said plurality of light sources of said second light source group in response to a fourth synchronous signal having a different phase from that of said second synchronous signal by half a period.

5. The backlight device according to claim 1, wherein said first light source group includes a plurality of light sources and the plurality of light sources of said first light source group is divided into a plurality of first subgroups, and

said plurality of first subgroups and said second light

source group are arranged alternately.

6. The backlight device according to claim 5, wherein
said second light source group includes a plurality of
5 light sources, and the plurality of light sources of said
second light source group are divided into a plurality of
second subgroups, and

said plurality of first subgroups and said second
subgroups are arranged alternately.

10

7. The backlight device according to claim 1, wherein
the phase difference between said first synchronous signal
and said second synchronous signal is within a range of 75
degrees to 105 degrees or a range of 255 degrees to 285
15 degrees.

8. The backlight device according to claim 1, wherein
the phase difference between said first synchronous signal
and said second synchronous signal is substantially 90
20 degrees or 270 degrees.

9. The backlight device according to claim 1, wherein
said drive unit includes:
a first drive circuit that applies a first drive voltage
25 to said one or more light sources of said first light source

group synchronously with said first synchronous signal; and

a second drive circuit that applies a second drive voltage to said one or more light sources of said second light source group synchronously with said second synchronous
5 signal.

10. The backlight device according to claim 9, wherein said drive unit further includes a first signal generating circuit that generates said second synchronous signal based
10 on said first synchronous signal.

11. The backlight device according to claim 3, wherein said drive unit includes:

a first drive circuit that applies a first drive voltage
15 to said part of said plurality of light sources of said first light source group synchronously with said first synchronous signal;

a second drive circuit that applies a second drive voltage to said one or more light sources of said second light
20 source group synchronously with said second synchronous signal; and

a third drive circuit that applies a third drive voltage to said rest of said plurality of light sources of said first light source group synchronously with said third synchronous
25 signal.

12. The backlight device according to claim 11, wherein
said drive unit further includes:

a first signal generating circuit that generates said
5 second synchronous signal based on said first synchronous
signal; and

a second signal generating circuit that generates said
third synchronous signal based on said first synchronous
signal.

10

13. The backlight device according to claim 4, wherein
said drive unit includes:

a first drive circuit that applies a first drive voltage
to said part of said plurality of light sources of said first
15 light source group synchronously with said first synchronous
signal;

a second drive circuit that applies a second drive
voltage to said part of said plurality of light sources of
said second light source group synchronously with said second
20 synchronous signal;

a third drive circuit that applies a third drive voltage
to said rest of said plurality of light sources of said first
light source group synchronously with said third synchronous
signal; and

25 a fourth drive circuit that applies a fourth drive

voltage to said rest of said plurality of light sources of said second light source group synchronously with said fourth synchronous signal.

5 14. The backlight device according to claim 13, wherein said drive unit further includes:

 a first signal generating circuit that generates said second synchronous signal based on said first synchronous signal;

10 a second signal generating circuit that generates said third synchronous signal based on said first synchronous signal; and

 a third signal generating circuit that generates said fourth synchronous signal based on said second synchronous
15 signal.

 15. The backlight device according to claim 1, wherein the number of said one or more light sources of said first light source group and the number of said one or more light
20 sources of said second light source group are equal.

 16. The backlight device according to claim 1, wherein said one or more light sources of said first light source group and said one or more light sources of said second light source
25 group are straight tube lamps or L-shaped lamps.

17. The backlight device according to claim 16, further comprising:

a light guide plate, wherein

5 said straight tube lamps or L-shaped lamps are arranged on the side of said light guide plate.

18. A display device comprising:

a display panel that displays an image; and

10 a backlight device arranged on the back side of said display panel, wherein

said backlight device includes:

a first light source group including one or more light sources that emit visible light and infrared rays;

15 a second light source group including one or more light sources that emit visible light and infrared rays; and

a drive unit that drives the one or more light sources of said first light source group in response to a first synchronous signal and drives the one or more light sources of said second light source group in response to a second synchronous signal, and wherein

a phase difference between said first synchronous signal and said second synchronous signal is within a range larger than 60 degrees and smaller than 120 degrees or a range larger than 240 degrees and smaller than 300 degrees.

25

19. The display device according to claim 18, wherein said display panel is a liquid crystal display panel.